



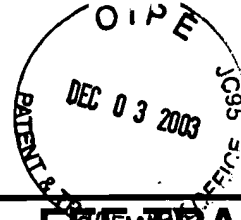
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TRANSMITTAL FORM <i>(to be used for all correspondence after initial filing)</i>		Application No.	09/665,721
		Filing Date	September 18, 2000
		First Named Inventor	Sukendee Samra
		Art Unit	2676
		Examiner Name	Tam D. Tran
Total Number of Pages in This Submission	60	Attorney Docket Number	80398P288

ENCLOSURES (check all that apply)		
<input checked="" type="checkbox"/> Fee Transmittal Form <input checked="" type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment / Response <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> PTO/SB/08 <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Response to Missing Parts/Incomplete Application <input type="checkbox"/> Basic Filing Fee <input type="checkbox"/> Declaration/POA <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s)	<input type="checkbox"/> After Allowance Communication to Group <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input checked="" type="checkbox"/> Appeal Communication to Group (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input checked="" type="checkbox"/> Other Enclosure(s) (please identify below): <div style="border: 1px solid black; padding: 5px; margin-top: 10px;">Return postcard</div>
Remarks		<div style="border: 1px solid black; padding: 10px; text-align: center;">RECEIVED DEC 05 2003 Technology Center 2600</div>

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT	
Firm or Individual name	Jeffery Scott Heilesen, Reg. No. 46,765 BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP
Signature	
Date	12/1/03

CERTIFICATE OF MAILING/TRANSMISSION			
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Typed or printed name	Cathy Bachmann		
Signature		Date	12/1/03



FEE TRANSMITTAL for FY 2003

Effective 01/01/2003. Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27.

TOTAL AMOUNT OF PAYMENT (\$)

330.00

Complete if Known

Application Number 09/665,721
Filing Date September 18, 2000
First Named Inventor Sukendeep Samra
Examiner Name Tam D. Tran
Group/Art Unit 2676
Attorney Docket No. 80398P288

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METHOD OF PAYMENT (check all that apply)

☒ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None
☒ Deposit Account

Deposit Account Number

02-2666

Deposit Account Name

Blakely, Sokoloff, Taylor & Zafman LLP

The Commissioner is authorized to: (check all that apply)

☐ Charge fee(s) indicated below ☒ Credit any overpayments
☒ Charge any additional fee(s) required under 37 CFR §§ 1.16, 1.17, 1.18 and 1.20.
☐ Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account

FEE CALCULATION

1. BASIC FILING FEE

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1001	770	2001	385	Utility filing fee	
1002	340	2002	170	Design filing fee	
1003	530	2003	265	Plant filing fee	
1004	770	2004	385	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	

SUBTOTAL (1)

(\$)

2. EXTRA CLAIM FEES

Total Claims - 56* = X =
Independent Claims - 4 = X =
Multiple Dependent

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1202	18	2202	9	Claims in excess of 20	
1201	86	2201	43	Independent claims in excess of 3	
1203	290	2203	145	Multiple Dependent claim, if not paid	
1204	86	2204	43	**Reissue independent claims over original patent	
1205	18	2205	9	**Reissue claims in excess of 20 and over original patent	

SUBTOTAL (2)

(\$)

*or number previously paid, if greater, For Reissues, see below

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet.	
2053	130	2053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for <i>ex parte</i> reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	420	2252	210	Extension for reply within second month	
1253	950	2253	475	Extension for reply within third month	
1254	1,480	2254	740	Extension for reply within fourth month	
1255	1,210	2255	605	Extension for reply within fifth month	
1404	330	2401	165	Notice of Appeal	
1402	330	2402	165	Filing a brief in support of an appeal	330.00
1403	290	2403	145	Request for oral hearing	
1451	1,510	2451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,330	2453	665	Petition to revive - unintentional	
1501	1,330	2501	665	Utility issue fee (or reissue)	
1502	480	2502	240	Design issue fee	
1503	640	2503	320	Plant issue fee	
1460	130	2460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CFR 1.17(q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	770	1809	385	Filing a submission after final rejection (37 CFR § 1.129(a))	
1810	770	2810	385	For each additional invention to be examined (37 CFR § 1.129(b))	
1801	770	2801	385	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	

Other fee (specify)

* Reduced by Basic Filing Fee Paid

SUBTOTAL (3)

(\$)

330.00

SUBMITTED BY

Name (Print/Type) Jeffery Scott Heileson

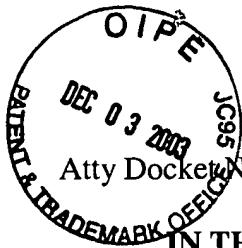
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(Attorney/Agent)

Telephone (408) 720-8300

Signature

Date

12/1/03



Atty Docket No. 080398.P288

Patent

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:) Examiner: Tran, Tam D.
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Samra, Sukendeep) Art Unit: 2676
)
Serial No. 09/665,721) Confirmation No.: 5421
)
Filed: September 18, 2000)
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For: SYSTEM AND METHOD FOR)
DYNAMIC AUTOCROPPING)
OF IMAGES)

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APPELLANT'S BRIEF UNDER 37 C.F.R. 1.192

This is an appeal to the Board of Patent Appeals and Interferences from the decision of the Examiner of Group 2676, dated July 2, 2003, which finally rejected Claims 1-56 in the above-identified application. This Appeal Brief is hereby submitted in triplicate pursuant to 37 C.F.R. § 1.192(a).

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CATHY BACHMANN

Name of Person Mailing Correspondence

Cathy Bachmann
Signature

12/1/03
Date

I. REAL PARTY IN INTEREST

The real parties in interest are the assignees of the full interest in the invention, Sony Corporation, 7-35 Kitashinagawa, 6-Chome, Shinagawa-Ku, Tokyo, Japan, and Sony Electronics, Inc., 1 Sony Drive, Park Ridge, New Jersey 07656.

II. RELATED APPEALS AND INTERFERENCES

To the best of Appellant's knowledge, there are no appeals or interferences related to the present appeal that will directly affect, be directly affected by, or have a bearing on the Board's decision in the instant appeal.

III. STATUS OF THE CLAIMS

Claims 1-56 are pending in the application and were finally rejected in an Office Action mailed July 2, 2003. Claims 1-56 are the subject of this appeal. A copy of Claims 1-56 as they stand on appeal are set forth in Appendix A.

IV. STATUS OF AMENDMENTS

The application was filed with Claims 1-42. Claims 1-42 were rejected in an Office Action mailed December 31, 2002. Applicant amended claims 1, 2, 4, 15, 16, 18, 22, 23, 29, 30, 32, 36, 37, and added claims 43-56 in response to the December 31, 2002 Office Action. Claims 1-56 were finally rejected in a Final Office Action mailed July 2, 2003. On September 2, 2003, Applicant filed a response to the Final Office Action. Applicant filed a Notice of Appeal on October 2, 2003. An Advisory Action was mailed October 6, 2003, indicating that Applicant's response to the Final Rejection did not place

the application in condition for allowance. No amendments have been submitted subsequent to the Final Rejection mailed July 2, 2003.

V. SUMMARY OF INVENTION

Appellant's invention as claimed in claims 1-56 is directed to creating autocrop (automatic cropping) data for each image of a sequence of images. Each of the images in the sequence includes a frame of video data, and autocrop data is stored for each key frame of the sequence of images. Key frames are image frames of a sequence of images which are important to the sequence of images. For example, a current frame is designated as a key frame if the current image is a first image of a sequence of images, if an active region of the current image is not inside a prior image's active region, or if smoothing is needed. [Specification, page 6, lines 27-33; page 8, lines 31-33].

VI. ISSUES

I. Whether Claims 1-56 are patentable under 35 U.S.C. § 102(b) over U.S. Patent 4,482,924 to Brownstein (hereinafter Brownstein).

VII. GROUPING OF CLAIMS

I. Group I consists of Claims 1-56 that stand rejected on the grounds presented as Issue I. Claims 1, 15, 29 and 43 are independent claims. The claims of Group I stand or fall together. Claim 1 is the representative claim for Group I.

VIII. ARGUMENTS

I. The claims of Group I are Patentable under 35 U.S.C. § 102(b) over Brownstein.

The claims of Group I stand rejected under 35 U.S.C. § 102(b) as being anticipated by Brownstein.

Brownstein is directed to a photographic film having magnetic media to store encoded cropping coordinates. A film video player is used to produce a television display of the film image, which facilitates a user in manually adjusting the magnification and vertical/horizontal position of the image. Once the user has cropped the image to their satisfaction, the coordinates of the cropped image are magnetically encoded on the film by a magnetic recording head of the film video player. The coded indicia specifies the selected magnification and vertical/horizontal translation for the cropped image. A photographic printer may be used to make reflection prints from the cropping coordinates stored on the photographic film. The film video player may also read encoded cropping coordinates from film when an “auto-crop” button is on, and automatically composes a frame according to the coordinates stored on the film. In addition to storing cropping coordinates, the magnetic media on the film may also store a code indicating the next frame to be viewed in the film video player to automatically advance the film to the desired frame. This allows film images to be displayed in an order other than that in which they occur on the film strip or disc. [Brownstein, col. 1, line 61- col. 2, line 22; col. 3, ll. 25-38; col. 3, line 64 – col. 4, line 15].

In independent claim 1, Applicant claims the limitation of “storing autocrop data for each key frame of the sequence of images.” The Examiner has asserted that Brownstein’s teaching to apply coded frame cropping indicia to film anticipates this

limitation. [Office Action of July 2, 2003, page 2, citing Brownstein, col. 3, ll. 29-37]. Additionally, the Examiner has asserted that Brownstein's disclosure of film storing a magnetic code indicating a next frame to be viewed in the video player reads on Applicant's claimed key frame. [Advisory Action mailed October 6, 2003, p.2] Thus, the Examiner has equated Brownstein's film storing coded indicia for a frame with Applicant's claimed "key frame."

During patent examination, the pending claims must be given the broadest reasonable interpretation consistent with the specification. [*In re Morris*, 127 F.3d 1048, 1054, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997); *In re Prater*, 415 F.2d 1393, 162 USPQ 541 (CCPA 1969), emphasis added, cited in MPEP §2173.05(a)]. Furthermore, the words of the claim must be given their plain meaning unless applicant has provided a clear definition in the specification. [*In re Zletz*, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989), cited in MPEP §2111.01].

Applicant respectfully submits that the claim term "key frame" is a well-known term of art in the field of film and video. A "key frame" is a frame of a film or video that contains significant video data. Applicant has used the term in the Specification consistently with its well-known meaning in the art. Applicant's Specification states that "key frames are image frames of a sequence of images which are important to the sequence of images and include the first image of a sequence of images, and image frames which are substantially different from the prior image frame." [Specification, p. 6, ll. 27-33, emphasis added]. Furthermore, Applicant's Specification states that a current frame is designated as a key frame if "the current image is a first image, if the active region of the current image is not inside the prior image's active region, or if smoothing is needed." [Specification, p. 8, ll. 31-33.]

The term "key frame" in the claims cannot be properly interpreted to read on Brownstein's film storing coded indicia, since Brownstein does not disclose that the film frames selected for cropping possess any of the attributes of a key frame. Instead, Brownstein discloses that cropping data is encoded on the film for a particular frame based solely on the user's desire to crop a particular image for aesthetic purposes. [Brownstein, col. 1, lines 30-35]. Brownstein simply does not disclose that a frame selected for cropping must be any of a first image of a sequence of images, an image which contains an active region outside of the prior image's active region, or an image which requires smoothing. Therefore, Brownstein does not disclose a key frame or its equivalent, as used by the Applicant and as is commonly understood in the art. Thus Brownstein cannot anticipate Applicant's invention as claimed in independent claim 1. Accordingly, the rejection of claim 1 and the other claims of Group I over Brownstein should be withdrawn.

IX. CONCLUSION

For the reasons stated above, the Examiner has failed to establish that the claims of Group I are anticipated by Brownstein under 35 U.S.C. § 102(b). Appellant respectfully requests that the Board reverse the rejections of the claims of Groups I under 35 U.S.C. § 102(b) and direct the Examiner to enter a Notice of Allowance for Claims 1-56.

Fee for Filing a Brief in Support of Appeal

Enclosed is a check in the amount of \$330.00 to cover the fee for filing a brief in support of an appeal as required under 37 C.F.R. 1.17(c) and 1.192(a).

Deposit Account Authorization


Authorization is hereby given to charge our Deposit Account No. 02-2666 for any charges that may be due. Furthermore, if an extension is required, then Appellant hereby requests such extension.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR
& ZAFMAN LLP

Dated: 12/1/03

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Attorney for Applicant
Registration No. 46,765

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re Application of:) Examiner:	Tran, Tam D.
)	
Samra, Sukendeeep) Art Unit:	2676
)	
Serial No. 09/665,721) Confirmation No.:	5421
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Filed: September 18, 2000)	
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For: SYSTEM AND METHOD FOR)	
DYNAMIC AUTOCROPPING)	
<u>OF IMAGES</u>)	

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPENDIX A FOR APPELLANT'S BRIEF UNDER 37 C.F.R. 1.192

1. A method comprising:
preparing autocrop data for each image of a sequence of images, each image comprising a frame of video data; and
storing autocrop data for each key frame of the sequence of images.
2. The method of Claim 1 wherein preparing autocrop data comprises:
determining the active region of a current image of the sequence of images.
3. The method of Claim 2 wherein determining the active region comprises:
selecting a portion of the current image as the active region of the current image such that all pixels outside the active region have no opacity.
4. The method of Claim 3 wherein selecting a portion comprises:

locating a first vertical line of pixels with at least one pixel having non-zero opacity closest to the origin of the current image;
locating a second vertical line of pixels with at least one pixel having non-zero opacity furthest from the origin of the current image;
locating a first horizontal line of pixels with at least one pixel having non-zero opacity closest to the origin of the current image;
locating a second horizontal line of pixels with at least one pixel having non-zero opacity furthest from the origin of the current image; and
storing data specifying the active region of the current image.

5. The method of Claim 4 wherein

locating the first vertical line and locating the second vertical line are performed before locating the first horizontal line and locating the second horizontal line; and
locating the first horizontal line and locating the second horizontal line each comprise examining pixels between the first vertical line and the second vertical line.

6. The method of Claim 4 wherein

locating the first horizontal line and locating the second horizontal line are performed before locating the first vertical line and locating the second vertical line; and
locating the first vertical line and locating the second vertical line each comprise examining pixels between the first horizontal line and the second horizontal line.

7. The method of Claim 4 wherein storing data specifying the active region of the current image comprises:

storing the x coordinate of the first vertical line, the x coordinate of the second vertical line, the y coordinate of the first horizontal line, and the y coordinate of the second horizontal line.

8. The method of Claim 1 further comprising:

determining which images of the sequence of images are key frames.

9. The method of Claim 8 wherein determining comprises:
 - determining whether the current image is the first frame of the sequence of images, and, if so, designating the current image as a key frame;
 - determining whether the active region of the current image is outside the active region of a prior image, and, if so, designating the current image as a key frame; and
 - determining whether smoothing is needed, and, if so, designating the current image as a key frame.
10. The method of Claim 9 wherein determining whether smoothing is needed comprises:
 - calculating the difference in area between the active region of the current image and the active region of the prior image; and
 - comparing the difference in area with a smoothing factor.
11. The method of Claim 10 wherein the smoothing factor is a numerical value set by a user.
12. The method of Claim 9 wherein the active region is a portion of any image such that all pixels outside the active region of the image have no opacity.
13. The method of Claim 2 further comprising:
 - adding a boundary to the active region of the current image.
14. The method of Claim 13 wherein the boundary is a numerical value set by a user.
15. A machine readable medium having stored thereon instructions which when executed by a processor cause the machine to perform operations comprising:
 - preparing autocrop data for each image of a sequence of images, each image comprising a frame of video data; and
 - storing autocrop data for each key frame of the sequence of images.

16. The machine readable medium of Claim 15 wherein preparing autocrop data causes the machine to perform operations comprising:

determining the active region of a current image of the sequence of images.

17. The machine readable medium of Claim 16 wherein determining the active region data causes the machine to perform operations comprising:

selecting a portion of the current image as the active region of the current image such that all pixels outside the active region have no opacity.

18. The machine readable medium of Claim 17 wherein selecting a portion causes the machine to perform operations comprising:

locating a first vertical line of pixels with at least one pixel having non-zero opacity closest to the origin of the current image;

locating a second vertical line of pixels with at least one pixel having non-zero opacity furthest from the origin of the current image;

locating a first horizontal line of pixels with at least one pixel having non-zero opacity closest to the origin of the current image;

locating a second horizontal line of pixels with at least one pixel having non-zero opacity furthest from the origin of the current image; and

storing data specifying the active region of the current image.

19. The machine readable medium of Claim 18 wherein:

locating the first vertical line and locating the second vertical line are performed before locating the first horizontal line and locating the second horizontal line; and

locating the first horizontal line and locating the second horizontal line each comprise examining pixels between the first vertical line and the second vertical line.

20. The machine readable medium of Claim 18 wherein:

locating the first horizontal line and locating the second horizontal line are performed before locating the first vertical line and locating the second vertical line; and

locating the first vertical line and locating the second vertical line each comprise examining pixels between the first horizontal line and the second horizontal line.

21. The machine readable medium of Claim 18 wherein storing data specifying the active region of the current image causes the machine to perform operations comprising:

storing the x coordinate of the first vertical line, the x coordinate of the second vertical line, the y coordinate of the first horizontal line, and the y coordinate of the second horizontal line.

22. The machine readable medium of Claim 15 having stored thereon further instructions which when executed by the processor cause the machine to perform further operations comprising:

determining which images of the sequences of image are key frames.

23. The machine readable medium of Claim 22 wherein determining causes the machine to perform operations comprising:

determining whether the current image is the first frame of the sequence of images, and, if so, designating the current image as a key frame;

determining whether the active region of the current image is outside the active region of a prior image, and, if so, designating the current image as a key frame; and

determining whether smoothing is needed, and, if so, designating the current image as a key frame.

24. The machine readable medium of Claim 23 wherein determining whether smoothing is needed causes the machine to perform operations comprising:

calculating the difference in area between the active region of the current image and the active region of the prior image; and

comparing the difference in area with a smoothing factor.

25. The machine readable medium of Claim 24 wherein the smoothing factor is a numerical value set by a user.

26. The machine readable medium of Claim 23 wherein the active region is a portion of any image such that all pixels outside the active region of the image have no opacity.

27. The machine readable medium of Claim 16 having stored thereon further instructions which when executed by the processor cause the machine to perform further operations comprising:

adding a boundary to the active region of the current image.

28. The machine readable medium of Claim 13 wherein the boundary is a numerical value set by a user.

29. A system comprising:

a processor coupled to a bus;

a memory coupled to the bus;

a storage device coupled to the bus, the storage device having stored thereon instructions which when executed by the processor cause the system to perform operations comprising:

preparing autocrop data for each image of a sequence of images, each image comprising a frame of video data; and

storing autocrop data for each key frame of the sequence of images on the storage device.

30. The system of Claim 29 wherein preparing autocrop data causes the system to perform operations comprising:

determining the active region of a current image of the sequence of images.

31. The system of Claim 30 wherein determining the active region data causes the system to perform operations comprising:

selecting a portion of the current image as the active region of the current image such that all pixels outside the active region have no opacity.

32. The system of Claim 31 wherein selecting a portion causes the system to perform operations comprising:

- locating a first vertical line of pixels with at least one pixel having non-zero opacity closest to the origin of the current image;
- locating a second vertical line of pixels with at least one pixel having non-zero opacity furthest from the origin of the current image;
- locating a first horizontal line of pixels with at least one pixel having non-zero opacity closest to the origin of the current image;
- locating a second horizontal line of pixels with at least one pixel having non-zero opacity furthest from the origin of the current image; and
- storing data specifying the active region of the current image.

33. The system of Claim 32 wherein:

- locating the first vertical line and locating the second vertical line are performed before locating the first horizontal line and locating the second horizontal line; and
- locating the first horizontal line and locating the second horizontal line each comprise examining pixels between the first vertical line and the second vertical line.

34. The system of Claim 32 wherein:

- locating the first horizontal line and locating the second horizontal line are performed before locating the first vertical line and locating the second vertical line; and
- locating the first vertical line and locating the second vertical line each comprise examining pixels between the first horizontal line and the second horizontal line.

35. The system of Claim 32 wherein storing data specifying the active region of the current image causes the system to perform operations comprising:

- storing the x coordinate of the first vertical line, the x coordinate of the second vertical line, the y coordinate of the first horizontal line, and the y coordinate of the second horizontal line.

36. The system of Claim 29 having further instructions which when executed by the processor cause the system to perform further operations comprising:

determining which images of the sequence of images are key frames.

37. The system of Claim 36 wherein determining causes the system to perform operations comprising:

determining whether the current image is the first frame of the sequence of images, and, if so, designating the current image as a key frame;

determining whether the active region of the current image is outside the active region of a prior image, and, if so, designating the current image as a key frame; and

determining whether smoothing is needed, and, if so, designating the current image as a key frame.

38. The system of Claim 37 wherein determining whether smoothing is needed causes the system to perform operations comprising:

calculating the difference in area between the active region of the current image and the active region of the prior image; and

comparing the difference in area with a smoothing factor.

39. The system of Claim 37 wherein the active region is a portion of any image such that all pixels outside the active region of the image have no opacity.

40. The system of Claim 39 having stored thereon further instructions which when executed by the processor cause the system to perform further operations comprising:

adding a boundary to the active region of the current image.

41. The system of Claim 29 wherein reading at least one sequence of images comprises:

transferring at least one sequence of images from the storage device to the memory.

42. The system of Claim 29 wherein reading at least one sequence of images comprises:

transferring at least one sequence of images from a remote storage device via a network.

43. An apparatus comprising:

means for preparing autocrop data for each image of a sequence of images, each image comprising a frame of video data; and

means for storing autocrop data for each key frame of the sequences of images.

44. The apparatus of Claim 43 wherein the means for preparing autocrop data comprises:

means for determining the active region of a current image of the sequence of images.

45. The apparatus of Claim 44 wherein the means for determining the active region comprises:

means for selecting a portion of the current image as the active region of the current image such that all pixels outside the active region have no opacity.

46. The apparatus of Claim 45 wherein the means for selecting a portion comprises:

means for locating a first vertical line of pixels with at least one pixel having non-zero opacity closest to the origin of the current image;

means for locating a second vertical line of pixels with at least one pixel having non-zero opacity furthest from the origin of the current image;

means for locating a first horizontal line of pixels with at least one pixel having non-zero opacity closest to the origin of the current image;

means for locating a second horizontal line of pixels with at least one pixel having non-zero opacity furthest from the origin of the current image; and

means for storing data specifying the active region of the current image.

47. The apparatus of Claim 46 wherein
the means for locating the first vertical line and the means for locating the second vertical line process the current image before the means for locating the first horizontal line and the means for locating the second horizontal line; and
the means for locating the first horizontal line and the means for locating the second horizontal line each comprise means for examining pixels between the first vertical line and the second vertical line.
48. The apparatus of Claim 46 wherein
the means for locating the first horizontal line and the means for locating the second horizontal line process the current image before the means for locating the first vertical line and the means for locating the second vertical line; and
the means for locating the first vertical line and the means for locating the second vertical line each comprise means for examining pixels between the first horizontal line and the second horizontal line.
49. The apparatus of Claim 46 wherein the means for storing data specifying the active region of the current image comprises:
means for storing the x coordinate of the first vertical line, the x coordinate of the second vertical line, the y coordinate of the first horizontal line, and the y coordinate of the second horizontal line.
50. The apparatus of Claim 43 further comprising:
means for determining which images of the sequence of images are key frames.
51. The apparatus of Claim 50 wherein the means for determining comprises:
means for determining whether the current image is the first frame of the sequence of images, and, if so, designating the current image as a key frame;
means for determining whether the active region of the current image is outside the active region of a prior image, and, if so, designating the current image as a key frame; and

means for determining whether smoothing is needed, and, if so, designating the current image as a key frame.

52. The apparatus of Claim 51 wherein the means for determining whether smoothing is needed comprises:

means for calculating the difference in area between the active region of the current image and the active region of the prior image; and

means for comparing the difference in area with a smoothing factor.

53. The apparatus of Claim 52 wherein the smoothing factor is a numerical value set by a user.

54. The apparatus of Claim 51 wherein the active region is a portion of any image such that all pixels outside the active region of the image have no opacity.

55. The apparatus of Claim 44 further comprising:

means for adding a boundary to the active region of the current image.

56. The apparatus of Claim 55 wherein the boundary is a numerical value set by a user.